
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Cieslak et al.

Attorney Docket No.: CISCPI39

Application No.: 09/588,027

Examiner: Kang, Paul H.

Filed: June 5, 2000

Group: 2141

Title: NETWORK CACHE-BASED CONTENT
ROUTING

DECLARATION OF PRIOR INVENTION
UNDER 37 C.F.R. § 1.131

Commissioner for Patents
Washington, D.C. 20231

I, Martin Cieslak, do hereby declare:

1. I am a co-inventor of the subject matter claimed in the above-referenced patent application.
2. My co-inventors, James Aviani and Martin Kagan, and I invented the subject matter recited in the present application prior to February 4, 2000, as evidenced by our joint submission on April 26, 1999, of an invention disclosure entitled *Network cache-based content routing* (Patent Idea Details for Idea #48210) to the online patent disclosure repository maintained by our employer at that time, Cisco Systems, Inc. A copy of the entry is attached to this declaration, with confidential material redacted.
3. All of the features of the above-reference patent application are described in the invention disclosure which is sufficiently detailed to evidence not only the conception of the invention, but to allow one of ordinary skill in the art to reduce the invention to practice as well.
4. In addition, subsequent to the submission to Cisco's online patent disclosure repository, due diligence was exercised in the preparation and filing of the present application on June 5, 2000. Specifically, I worked with Joe Villaneuve of Beyer, Weaver & Thomas on the

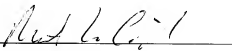
preparation of a patent application. It is my understanding that Mr. Villaneuve was asked by Cisco in October of 1999 to prepare the patent application. It my further understanding that between April 26, 1999 and October of 1999, Cisco's patent review committee was diligently evaluating the proposed idea to determine whether to file a patent application on it. Once that determination was made, it is my understanding that Mr. Villaneuve was contacted to prepare the application. I began working with Mr. Villaneuve in November of 1999 and a first draft of the patent application was delivered to me on February 16, 2000, as evidenced by a letter from Mr. Villaneuve to myself on that date. A copy of this letter is attached to this declaration.

5. All of the work relating to the conception and reduction to practice of the invention was performed in the United States.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


Date: Aug 28, 2007


Signature



Martin Cieslak

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**Cisco Patents On-Line (CPOL)**
Idea Details (#48210)


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Network cache-based content routing

CPOL No.: 48210 **Seq No.:** 1594 **Status:** Pending **Submitted:** 26-Apr-1999

Portfolio Manager

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Idea Details

The contents of this submission and any additions or modifications thereto constitute Cisco confidential information and may be a privileged communication to or from one or more attorneys and/or supporting personnel for purposes of obtaining or facilitating legal advice and/or legal services.

Inventors: [Email Inventors](#)

James Aviani ([javiani](#)) *Employee has left Cisco.*

Martin Cieslak ([mcieslak](#)) **Phone:** +1 248 455 1789 **Manager:** [anandv](#) **Dept:** Caching Services ...
Type: Regular **Division:** STG/DCSTG **Site:** -- **Info:** [Cisco Directory](#)

Martin Kagan ([mkagan](#)) *Employee has left Cisco.*

Background: In discussions with beta customers, I have been informed of two problems in need of innovative solutions:

1. Since caches act as traffic consolidators, they may mess-up route load-balancing schemes based upon client source ip-address. For example, while an earlier decision may have been made to let x connection go out of router a, rather than b or c, the cache that x connection gets redirected to might always use router b as its default gateway, thus voiding the earlier decision to send that request out of router a.
2. In some overseas ISPs, there are two very different connections to US content providers: terrestrial links (fast, expensive), and satellite links (slow, cheap). In order to save themselves money, and yet still provide what appears to be fast service, one administrator (Mark Tracey, OzEmail) suggested that he would like HTML pages to come down the terrestrial link, while the larger (and thus more expensive) binary objects (GIFs, JPEGs, MPEGs, PDFs, etc) arrive via satellite. Because browsers are designed to start drawing a page as soon as the HTML code arrives, independent of the inline images, the user experience would be that "the page" appears to arrive quickly, even though the graphics may be taking the slow-path.

Both of these problems can, I believe, be solved through cache-based content routing.

Possible Prior Art: ---

Summary: Problem 1: Traffic consolidation

Solution 1: A cache with multiple IP addresses should be able to set a socket option on each outgoing request, specifying which source IP address should be placed on the outgoing packet. Round-robin schemes could be offered to provide some load-balancing of out-going traffic.

Solution 2: When a GRE-encapsulated, WCCP-redirceted, packet arrives at a caching

node, a flag should be set to record the IP address of the redirecting router. Thus if the cache needs to issue its own request for that object, it can reuse that router as its exit path. This has become critical, as WCCP now supports multiple routers.

Problem 2: Differentiated content-routing

Solution: Again, allowing the application to set a socket-option on outgoing requests to specify a source IP address and/or gateway would radically change the functionality of caches. MIME types, for example, are generally simple to detect from the suffix of the URL (ie, *.htm vs *.gif). Cache administrators ought to be able to create routing rules based on information which only a cache has, such as:

1. Cache-able vs. uncache-able content
2. Ascii vs. Binary objects
3. HTTP requests vs. ICP requests
4. Regular requests vs. forced-reloads
5. Static webpage requests vs. browser-based applications

Restatements:

Advantages: As more and more Internet traffic comes to rely on HTTP as its sole transport method, the proxy server offers the unique position of being able to identify and differentiate types of traffic within the port 80 stream.

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

Standards:

Technologies:

- Content Networking > Web Cache Communications Protocol (WCCP)

- IP > IP Tunneling > Generic Routing Encapsulation (GRE)
- IP > IP Application Services > HTTP

Networking Solutions:

- Large Enterprise > [Networking Solutions for Large Enterprise](#) > [Access Solutions for Large Enterprise](#) > [Internet Access Solution](#)
- Large Enterprise > [Networking Solutions for Large Enterprise](#) > [Network Management Solutions for Large Enterprise](#) > [Routing and Switching Management Solution](#)
- Large Enterprise > [Networking Solutions for Large Enterprise](#) > [Content Networking Solutions for Large Enterprise](#) > [Internet CDN Solution](#)

Categorization Notes:

Categories Summary
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February 16, 2000

Extension No. 20

Via Federal Express - Label No. 7908 1202 4835

Martin Cieslak
CISCO TECHNOLOGY, INC.
170 W. Tasman Drive
San Jose, CA 95134-1706

Re: U.S. Patent Application entitled: NETWORK CACHE-BASED CONTENT ROUTING
Your File No.: 1594
Our File No.: CISC139

Dear Martin:

Enclosed for your review is a draft of the above-identified patent application together with informal versions of our proposed drawings. The draft may include several blanks, which I trust are relatively self-explanatory so that you can readily fill in the required information. Please review the application to ensure that:

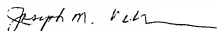
- (1) it contains an accurate and complete written description of the invention;
- (2) it sets forth sufficient detail to enable one skilled in the art to which it pertains to make and use the invention; and
- (3) it discloses the best known mode of practicing the invention (*i.e.*, the preferred way of making and using the invention).

To the extent possible, please make any changes to the application as you would like them to appear in the final version. When you have finished reviewing the application, please return the marked-up version of the draft. After we have received your comments and made any appropriate revisions, we will prepare the final version which will be forwarded for your review, together with the formal papers that you will need to execute.

As we have already discussed, we have a duty to disclose the most pertinent prior art of which you are aware to the Patent Office. If you can think of any pertinent references or patents, or simply any similar existing technology, please let us know, so that we can prepare an Information Disclosure Statement. Please remember that the duty to disclose pertinent prior art continues until the patent actually issues. Therefore, if you become aware of other prior art in the future, please let us know. We look forward to hearing from you in the near future.

Very truly yours,

BEYER WEAVER THOMAS & NGUYEN, LLP


Joseph M. Villaneuve

JMV:paf

Enclosures